

A NEW THRIPS DAMAGING COFFEE IN BRITISH EAST AFRICA.

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The Thrips described below was submitted to me by Mr. Guy A. K. Marshall, Director of the Imperial Bureau of Entomology, to whom it had been sent by Mr. T. J. Anderson, the Government Entomologist in British East Africa.

Fam. THRIPIDAE.

DIARTHROTHRIPS, gen. nov.

General form rather slender. Chitin unreticulated. Antennae eight-segmented, stylus shorter than the sixth segment. Head about as long as broad. Ocelli rather far back on the head. Maxillary palps two-segmented; labial palps one-segmented (possibly a second short basal one indistinctly separated from the labium). Mouth-cone somewhat long and bent downwards away from the prosternum. Thorax and abdomen slender. Two long spines on the hind angles of the prothorax, none at the fore angles. Wings slender, the greater part of the fore vein without spines. The ninth segment of the male without stout dorsal spines.

Type species, D. coffeae, nov.

This genus, on account of its two-segmented maxillary palps, bears a somewhat similar relation to *Physothrips* to that which *Baliothrips* does to *Thrips*. It is, however, further separated from *Physothrips* by the more slender build and the longer mouth-cone. The presence of ring joints at the bases of the fourth and fifth antennal segments, as mentioned below in the specific description, somewhat recalls *Cricothrips*, Trybom, from Zululand, but this character is found in species of other genera (e.g. *Physothrips antennatus*, Bagnall) and varies in distinctness in individuals. In the present species it seems to be more of the nature of a stage in the development of the pigment of the segment, and in darker specimens the light separation is often indistinct, particularly in the fifth segment; it is, however, always visible. On these grounds I do not consider it of generic value. From *Cricothrips* it is also distinguished by the absence of the dorsally swollen front part of the head and by the two-segmented maxillary palps.

***Diarthrothrips coffeae*, sp. nov.** (fig. 1).

FEMALE.

Measurements.—Head, length 0.130 mm., width 0.130 mm.; prothorax, length 0.108 mm., width 0.160 mm.; pterothorax, length 0.260 mm., width 0.206 mm.; abdomen, width about 0.20 mm.; wing, length 0.75 mm., width (about middle) 0.034 mm.

Antennae		1	2	3	4	5	6	7	8
length (μ)	..	26	36	50	56	41	50	9	18
width (μ)	..	29	24	18	18	16	17	8	6

Total body length about 1.16 mm., antennae 0.30 mm.

Colour pale yellowish brown, the sides of the head posteriorly and the abdomen, except for the last three segments, a little darker. Wings pale yellowish with two small dark areas. Pigment round the ocelli red. Antennae rather darker than the body; legs lighter.

Head (fig. 1 *a*) about as long as wide; sides of the head not arched, more or less parallel. *Eyes* large, but not projecting. Distance between the eyes about one and a quarter times the width of the eye; distance from the eye to the back of the head about equal to the length of the eye. *Ocelli* far back on the head, the posterior pair



Fig. 1. *Diarthrothrips coffeae*, Williams, sp. n.; *a*, head and prothorax; *b*, maxillary palp; *c*, antenna; *d*, forewing; *e*, antenna of larva; *f*, antenna of Aeolothripid larva.

on a level with the hind margin of the eyes; the three forming an equilateral triangle. A pair of long slender ocellar spines on the sides of the triangle rather nearer the anterior ocellus, a shorter pair more anterior (one near the margin of each eye), and two quite short ones near the median line on the frons. There is also a row of about six short slender spines across the head behind the eyes. The hind part of the head is faintly striated. *Mouth-cone* rather long and bent downwards; when, in mounted specimens, it is pressed against the prosternum it reaches to the hind margin of it. *Maxillary palps* (fig. 1 *b*) two-segmented, the apical segment the longer. *Labial*

palps apparently one-segmented, but with sometimes a doubtful second short basal segment indistinctly separated from the labium. *Antennae* (fig. 1 c) eight-segmented, rather long and slender, more than twice the length of the head: The first segment short and broad, very slightly tapering to the apex; the second longer and narrower, barrel-shaped; the third longer than the second, with a distinct pedicel at the base and tapering to a short neck at the apex; the fourth longer than the third, and with the apical neck longer; the fifth shorter than the third and without the constricted apex; the sixth slightly shorter than the fourth; the eighth longer than the seventh, the two together being about half as long as the sixth; forked trichomes on the third segment dorsally and on the fourth ventrally, the latter the longer. Colour: the first, second, sixth, seventh and eighth uniformly brown, a little darker than the body, the third and fourth brown except at the apex, the fifth paler at the base. Near the base of the fourth and fifth segments is a clear ring which separates off a narrow darker ring at the base; this varies in distinctness in individual specimens (see above).

Prothorax almost as long as and only about one-quarter wider than the head, with the sides nearly parallel. Two long slender spines at each hind angle, shorter ones on the fore and hind margins and a number of still shorter weak spines scattered over the pronotum. *Pterothorax* rather slender, angles rounded in front. *Legs* long and slender, paler than the body, the femora darkened in the middle. Fore femora not swollen; tarsi unarmed. *Wings* long and slender. Two longitudinal veins present in the front wing (fig. 1 d), the hind vein arising from the fore vein about one-quarter of the wing length from the base. On the costa 24–27 spines; on the fore vein 3 at the base, 2 at the level of the origin of the hind vein and 2 near the apex; on the hind vein 14–16. The anterior marginal fringe commences just distal to the fork of the veins; the posterior fringe at its greatest length is about seven and a half times the width of the wing. Colour pale yellowish, with an indistinct dark area at the level of the origin of the hind vein and a second, more distinct in the posterior half of the wing, about half way between the first and the apex. Spines on the wing pale, except those arising in the dark areas which are darker. Hind wings clear, with a single vein only distinct in the basal half of the wing. *Abdomen* slender, tenth segment short, only about two-thirds the length of the ninth, spines at the apex pale and slender, those on the ninth and tenth segments being about equal in length.

MALE.

Paler than the female and about one-fifth smaller. In the antennae the first two segments are clear, also the bases and apices of segments 3 and 4 and the base of 5; 6–8 are uniformly brown, but not so dark as in the female. On the costa of the fore wing are usually 22–24 spines, on the fore vein as in the female, and 12–14 on the hind vein: one male, however, has only 20 on the costa and 7 on the hind vein of one wing and 21 and 9 respectively on the other wing. There is no indication of clear areas on the abdominal sternites and there are no stout dorsal spines on the ninth tergite.

Measurements.—Head, length 0·100 mm., width 0·102 mm.; prothorax, length 0·080 mm., width 0·130 mm.; pterothorax, length 0·20 mm., width 0·164 mm. Total body length 0·97 mm., antennae 0·240 mm.

Described from numerous females and nine males collected on coffee at Kabete, British East Africa, in May 1915 by Mr. T. J. Anderson.

Type in the British Museum.

In the tube with the adults were also a large number of larvae and two prepupae. From the occurrence of the latter it would appear that the pupal stages are passed on the leaves with the larvae, but no doubt notes on the biology will be forthcoming from Mr. Anderson.

The *larvae* (described from specimens preserved in alcohol) are pale yellowish in colour with the small eyes and the tip of the mouth-cone dark. There are the usual spines on the ninth and tenth abdominal segments, but no characteristic processes such as are found in some species. The length of the fully-grown larva is 1.1 mm. The antennae (fig. 1 *e*) are six-segmented and comparatively short (0.16 mm.). The head is a little longer than broad.

The *prepupa* is also pale yellowish in colour, about 1.0 mm. in length and with the wing rudiments reaching to the second abdominal segment.

Amongst the larvae of *D. coffeae* was a single larva of some species of thrips of the family AEOLOTHRIPIDAE. The known larvae of this family are largely, if not entirely, predaceous and frequently feed on other thrips and their larvae; it is therefore quite probable that this one was feeding on the larvae or adults of the coffee thrips. It is similar in colour to the latter (pale yellow), but can easily be separated from this by the larger size (1.4 mm.), the shorter head, which is much broader than long, the longer legs and antennae, and its more active habits. The antenna is figured (fig. 1 *f*) for comparison with that of *D. coffeae*, at the same magnification. In the present state of our knowledge of the group it is not possible to say definitely to which genus it belongs.

Among about forty specimens of *D. coffeae* examined there are two with abnormal antennae. In the first, a female, the left antenna consists of only five segments, segments 1-4 being normal, while the fifth resembles the fused 6th, 7th and 8th of the normal antenna; the normal 5th segment seems to have disappeared entirely; the right antenna is quite normal. In the second, a male, the right antenna consists of seven segments, the reduction in this case being caused by the fusion of the 5th and 6th to form one long one; the last two segments are normal as also is the left antenna.

[Mr. Anderson states that this thrips has done serious damage to the leaves of coffee in several districts of British East Africa.—ED.]